

TEAM SPAWAR Supports the Navy's Global Maritime Partnership

By George Galdorisi, Dr. Stephanie Hsieh
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Introduction

The United States Navy is embarking on an ambitious initiative to craft a new maritime strategy. This will be the first new Navy strategy in a quarter-century, and the first one that addresses the post-Cold War and post-9/11 realities of the global war on terror. The Chief of Naval Operations Adm. Mike Mullen has indicated that this new strategy will be consistent with the National Security Strategy and the National Strategy for Maritime Security, as well as with other national level guidance.

As a key part of this strategy, Adm. Mullen has made the Global Maritime Partnership (*originally titled the 1000-ship Navy*) a key tenet of U.S. naval policy. The CNO has made it clear that he expects the Navy to work seamlessly at sea with a wide range of coalition partners.

This policy is already impacting the requirements generation process for the Navy, with the Deputy Chief of Naval Operations for Communications Networks and Navy Chief Information Officer, Vice Adm. Mark J. Edwards, directing his staff to "ensure coalition interoperability is considered at the earliest stages of capability development."

As the chief operating officer (COO) of the Naval NETWAR FORCEnet Enterprise (NNFE) and commander of the Space and Naval Warfare Systems Command (SPAWAR), Rear Adm. Mike Bachmann, leads the Team SPAWAR effort spearheading the work by the Navy's science, engineering and acquisition community to deliver FORCEnet capability to naval operators to make the Global Maritime Partnership a reality.

Coalition Operations

Coalition operations have become an increasingly important issue within the Navy — not only as a policy issue but as a practical issue for operators at sea. Third Fleet Commander Vice Adm. Barry Costello highlighted this fact during the NNFE and Industry Conference last fall when he said that fleet commanders unanimously identified one issue as their top priority: coalition communications. These commanders know from experience that coalition interoperability is the key to a successful mission.

The Navy's ability to communicate and exchange information with coalition partners is not only vital from a warfighting perspective, but is also integral to a wide array of humanitarian missions around the world. The tsunami relief efforts in December 2004 dramatically brought home the need for effective coalition communications. While coalition members were able to deliver much needed relief supplies, commanding officers were often challenged in communicating and exchanging information with

their coalition counterparts. Current and future efforts to bring about the Global Maritime Partnership must address the ongoing challenge of coalition interoperability. Coalition communications will not only enhance the Navy's warfighting capabilities but will also help the Navy meet the growing humanitarian missions that will become part of the new maritime strategy.

Operational Demands, Technical Imperatives

Based on long-standing Team SPAWAR projects, such as the Combined Enterprise Regional Information Exchange System (CENTRIXS), to enhance coalition networking at sea, SPAWAR has the embedded subject matter expertise to take coalition networking at sea to the next level. While there are several efforts along those lines currently underway, The Technical Cooperation Program's "FORCEnet Implications for Coalition Partners" initiative has taken a unique approach to defining coalition networking needs in terms of both immediate and future technologies and functions.

TTCP is a forum for defense science and technology collaboration between Australia, Canada, New Zealand, the United Kingdom and United States. Established as a joint effort between the Defense Department, the Department of Commerce and the respective agencies of the other four nations in the 1950s, TTCP is probably the largest collaborative defense science and technology activity in the world.

The statistics alone give some indication of the scope of this effort: five nations; 11 technology and systems groups formed; 80 technical panels and action groups; 170 organizations; and 1,200 scientists and engineers. By any measure, TTCP is a broad-based effort that tremendously facilitates science and technology cooperation among the five member nations. Importantly, while conducting this sort of interaction in other forums is certainly possible, the extant TTCP organization and infrastructure provide a ready-made medium that has made success in this endeavor probable.

The aim of TTCP is to foster cooperation within the science and technology areas needed for national defense. The purpose is to enhance national defense and reduce costs. To do this, TTCP provides a formal framework that scientists and technologists can use to share information among members. This is a primary reason why Team SPAWAR is involved in this effort.

Collaboration within TTCP provides a means of acquainting the participating nations with each other's defense research and development programs so that each national program may be adjusted and planned in concert with the efforts of the other nations. This process avoids unnecessary duplication among the programs, promotes concerted action and joint research to identify and close important gaps in the collective technology base, and it provides nations with the best technical information available.

TTCP has its center of gravity in the applied research domain, but it also encompasses basic research and technology development activities. The scope includes the exploration of alternative concepts prior to development of specific weapon systems, collaborative research, sharing of data, equipment, material and facilities, joint trials and exercises, and advanced technology demonstrations. Cooperation within TTCP often acts as the catalyst for project-specific collaborations further along the acquisition path.

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*— Rear Adm. Michael C. Bachmann
Commander SPAWAR*

The FORCENet Implications for Coalition Partners initiative was assigned to TTCP Maritime Systems Group (MAR), Action Group Six (AG-6), with Team SPAWAR assuming a key role in the leadership of this action group. For the past several years, MAR AG-6 and its predecessor, MAR AG-1, have been involved in analyzing maritime network-centric warfare options for coalitions, and how these options might be implemented in the network procurement programs of each individual nation.

In seeking to establish the basic requirement for the technologies to be included in these options, AG-6 began with a common understanding of the operational environment facing a coalition naval force. The group developed a scenario for a coalition naval force that began as disaster assistance/humanitarian relief, then moved into a counterterrorism effort, and ultimately a high-tempo conflict at sea.

Four principal measures of effectiveness — Time to Capability, Economy of Effort, Risk and Campaign Success — were devised to measure the effectiveness of a robustly networked coalition force that fully leveraged the U.S. Navy's FORCENet capability compared to one that was not networked.

In addition to the analysis of networked forces versus non-networked forces, AG-6 members liberally shared the "technology on-ramps" of their respective national acquisition communities in order to find the windows where complementary technological capabilities could be inserted into their naval C4ISR, or command, control, communications, computers, intelligence, surveillance and reconnaissance, systems.

By modeling the planned capabilities of these "on ramps" against the scenario, the impacts and value of alternative coalition network structures are being assessed. The resulting analysis will be used by AG-6 members to make specific procurement recommendations in their respective countries. Team SPAWAR is taking the lead sharing this information with the NNFE.

Mr. Don Endicott, head of the Communications and Information Systems Department at SPAWAR Systems Center San Diego, is the AG-6 chairman and has been coordinating the group's efforts for the past several years.

Endicott put a punctuation mark on the group's efforts when he noted that: "While the AG-6 analysis effort spans a wide spectrum of operations from planning through operations other than war, through potential conflict with a capable adversary, our initial findings indicate that one of the greatest benefits of coalition networking at sea may well be our ability to 'virtually train' with our likely coalition partners well in advance and en route to an operation. In this way, when we begin to operate at sea together we will not be in a pickup game."

Dr. Bill Rix and his team in the SPAWAR Office of the Chief Engineer are supporting the AG-6 effort to generate analytical data and conduct modeling and simulation to demonstrate

that if FORCENet is developed in a way that is inclusive of likely coalition partners, who, in turn, build their national systems to be compatible with FORCENet, the coalition of naval forces involved will enjoy a quantum increase in capability.

According to Dr. Rix, "Current systems and technologies are probably capable of supporting coalition collaboration if all the circumstances are anticipated in advance. Modeling and simulation tools can be brought to bear to determine the improvement in humanitarian operations or warfighting capability achieved in unanticipated scenarios, when coalition partners have invested in common and interoperable systems. This should help coalition and U.S. senior decision-makers to make more informed investment decisions."

Key to Our Future Naval Capability

Team SPAWAR is spearheading the AG-6 effort because an at-sea communications solution with coalition partners is unlikely to be effective, if it is conceived and developed solely in U.S. defense labs, and then inflicted on coalition partners. Inter-laboratory cooperation with these likely coalition nations is the surest way to realize the goal of long-term effective coalition communications at sea. Without this cooperation, effective coalition communications may well remain out of reach.

The nature of this Team SPAWAR-championed effort has attracted a number of organizations outside the SPAWAR naval laboratory and acquisition community. Some of these organizations like the Office of Naval Research, the Naval War College and the Naval Postgraduate School have placed members on this team because they recognize the importance of its work.

In addition to enhancing networking at sea between and among likely coalition partners, this effort has the potential to also help Team SPAWAR and the NNFE provide the analytical underpinning to determine "what a pound of C4ISR is worth."

The importance of coalition networking was the subject of a panel discussion at a recent major defense conference in San Diego. At that event, Bachmann, as a participant in a panel discussion with the Deputy Chief of Naval Operations for Information, Plans and Strategy, Vice Adm. John Morgan, said: "FORCENet is a key enabler for the 1,000-ship Navy. We are embarked upon a journey to ensure that we're interoperable not only with the other services that are critical to our warfighting effort, but also with our allies. We're at the point where we can make this capability available to our trusted allies, and we plan to do that."

Bachmann's remarks sum up the key role Team SPAWAR plays in providing the technical underpinning and international cooperation — at the science and technology working level — to ensure that the Global Maritime Partnership becomes a reality. The work of the TTCP AG-6 FORCENet Implications for Coalition Partners is an essential contribution to Team SPAWAR.

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